REMARKS/ARGUMENTS

This Amendment accompanies a Request for Continued Examination and addresses the issues presented in the Official Action of July 27, 2005 and corrects the spelling error noted in item 3 of the Advisory Action of November 8, 2005 (the word "hexynoic" in the name of the relevant compound appears in the specification at page 8, lines 8-9 and is spelled correctly in claim 22 as originally presented).

Reconsideration of this application is requested. Claims 19-22 will be active in the application subsequent to entry of this Amendment.

Claims 16-18 have been withdrawn to advance examination. Independent claims 19 and 22 and the claims dependent from them remain for further examination. A spelling error "petroselinic" acid (*see* page 8, line 6) in claim 22 is corrected by the above amendment.

Applicants are now focusing their attention on aspects of the disclosure as reflected in independent claims 19 and 22. Claim 19 features a catalyst comprising DBU and one (or more) acids selected from vinylacetic acid, methacrylic acid, tiglic acid, angelic acid, isanic acid, behenolic acid, petroselinic acid, ricinoelaidic acid, ricinoleic acid, 2-chloroacrylic acid, 3-chloroacrylic acid, 2-amino-3-butenoic acid and 2-amino-3-hydroxy-4-hexynoic acid. In claim 22 the amine is DBU, DBN or DBD and the one (or more) acids are those specified in claim 19.

The main point raised in the Official Action is the rejection of all of the claims then pending as lacking patentability over the disclosures of four references taken in combination. As applicants have explained in the past, the Hagio, Nakamura and Laas references are related to totally different technical fields and as such are not reasonably relevant to applicants' claims. Nor do these references (even if combined) lead to or suggest the unexpected results applicants are able to achieve.

Assuming if one having ordinary skill in the art would think to combine the teachings of these four references, the resulting combination would still not arrive at the subject matter claimed by applicants – it would not satisfy the requirements of a long pot life and rapid viscosity increase, as explained in more detail in the remarks that follow.

As applicants have previously explained, **Hagio et al** relates to an adhesive composition which can be applied by hot melt coating. The composition of Hagio et al includes (A) an acrylic copolymer having NCO-reactive groups and (B) a blocked polyisocyanate as essential

components and discloses the use of a cycloamidine (such as 1,8-diaza-bicyclo(5,4,0)undecene-7 (DBU), 1,5-diaza-bicyclo(4,3,0)nonene (DBN) and 1,5-diaza-bicyclo(4,4,0)decene (DBD)) or salt thereof as a catalyst.

The adhesive composition of Hagio et al requires heat curing at a high temperature such as 110-250°C after application (col. 9, lines 42-52) so that the blocked polyisocyanate is deblocked upon heating and reacts with the NCO-reactive groups in the acrylic copolymer (A). Thus, the adhesive composition of Hagio et al is originally designed not to cure – even after all the ingredients are mixed – until it is heated.

In contrast, the present invention relates to a method for producing a two component polyurethane sealant, and in the sealant of the present invention, using a specific catalyst containing DBU (claim 19) or DBU, DBN or DBD (claim 22) and one or more of a specified group of acids. As a sealant, the two component polyurethane sealant of the present invention does not require heating for curing and is so designed as to cure at ambient temperature. The two component polyurethane sealant of the present invention is also designed to satisfy the requirement of a long pot life and rapid viscosity increase. To accomplish these goals, it is necessary to use a catalyst which can delay the onset of the urethane forming reaction of isocyanate groups and allows the urethane-forming reaction to proceed rapidly after an appropriate pot life.

Because the adhesive composition of Hagio et al is originally designed not to cure without heating, it does not matter how long the adhesive composition of Hagio et al stays fluid at ambient temperature after the ingredients are mixed (i.e., how long the pot life of the composition is). Therefore, although Hagio et al discloses alts of cycloamidines such as DBU, DBN and DBD with numerous acids and proton-donating compounds, as catalysts, the skilled person cannot predict, from the teaching of Hagio et al *which* salts should be used as a catalyst to make a sealant which exhibits the properties of a long pot life and rapid viscosity increase, like the sealant of the present invention.

Nakamura et al relates to a method for producing a modified polyisocyanurate foam. Polyisocyanurate foams are a kind of polyurethane foam, and water and other blowing agents are used for foaming. In the production of polyisocyanurate foams, once the ingredients are mixed, the reaction begins immediately, and the cream time is usually from 4 to 20 seconds. Thus, the

polyisocyanurate foam system of Nakamura et al is not supposed to stay fluid for a while (i.e., have a long pot life) after the ingredients are mixed.

In contrast, the present invention does not require the use of water or a blowing agent. Also, the sealant of the present invention is required to have a long pot life, a property not required of the Nakamura et al compositions.

Thus, though Nakamura et al discloses numerous salts of DBU, the skilled person cannot predict, from the teaching of Nakamura et al, which salts should be used as a catalyst to make a sealant *which* satisfy a long pot life and rapid viscosity increase, like the sealant of the present invention.

Laas et al relates to a polyurethane powder coating composition including A) a binder component which is solid below 40°C and liquid above 130°C such as compound containing hydroxyl groups and B) a polyaddition compound which is solid below 40°C and liquid above 125°C, and contains uretdione groups. The powder coating composition of Laas et al also requires heating for curing (column 5, lines 61-67) so that the uretdione groups in the polyaddition compound B) cleave to form free isocyanate groups which react with hydroxyl groups in the binder component A) to form urethane bonds. Thus, it does not matter to the coating composition of Laas et al whether the catalyst can delay the onset of the urethane-forming reaction is isocyanate groups.

Therefore, though Laas et al discloses bicyclic amidines such as DBN as catalysts, the skilled person cannot predict, from the teaching of Laas et al, *which* bicyclic amidines should be used as a catalyst to make a sealant which satisfy a long pot life and rapid viscosity increase, like the sealant of the present invention. Besides, Laas et al never suggests use of salts of bicyclic amidines.

Hannah et al relates to polyurethane sealant composition comprising a polyurethane prepolymer having blocked isocyanate groups, an amine curing agent and a bicyclic amidine catalyst such as DBU, DBN and salts thereof with various carboxylic acids. In the sealant composition, the isocyanate groups of the polyurethane prepolymer are initially blocked with a blocking agent (column 3, line 48 to column 4, line 2). Because it takes a little time to remove the blocking agent from the urethane prepolymer before the urethane prepolymer starts to cure, the sealant composition of Hannah et al originally has a relatively long pot life. Therefore, it is

not necessary to use a catalyst which can delay the onset of the urethane-forming reaction of isocyanate groups in the sealant composition of Hannah et al, unlike the sealant of the present invention.

Actually, the sealant composition of Hannah et al is required to use both an amine curing agent and a bicyclic amidine catalyst which are effective in removing the blocking agent (column 4, lines 51-65). In contrast to Hannah et al the use of an amine curing agent is not essential to the present invention. Also, in the present invention a long pot life is attained in a different way, namely, by blocking a bicyclic tertiary amine by an unsaturated carboxylic acid (page 9, line 17 to page 10, line 7 of the specification). Hannah et al never suggests blocking a bicyclc tertiary amine by an acid, and actually, DBU and DBN in the free form, not in the from of salts, are used as the catalyst in Examples of Hannah et al. Therefore, the skilled person would not have been motivated to use a salt of DBU or DBN with an acid as the bicyclic amidine catalyst inseated of DBU or DBN itself in the sealant composition of Hannah et al.

As explained above, because Hagio et al, Nakamura et al and Laas et al relate to totally different polyurethane and isocyanate based polymeric systems, these references never suggest any catalysts which make it possible to prepare a two component polyurethane sealant which satisfies the requirements of a long pot life and rapid viscosity increase.

Even if a salt of a bicyclic tertiary amine such as DBU, DBN or DBD with an acid were used as a catalyst in the sealant composition of Hannah et al, the resulting composition would necessarily contain blocked isocyanate groups, and the sealant of the present invention could not be obtained.

Accordingly, claims 19-22 are not obvious from the combination of Hagio et al, Nakamura et al, Laas et al and Hannah et al.

For the above reasons, it is respectfully submitted that claims 19-22 define inventive subject matter. Reconsideration and allowance are solicited. Should the examiner require further information, please contact the undersigned by telephone.

Respectfully submitted,

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